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Monitoring of Soil-Borne Pathogens in the Agricultural Soils of the Pestrechinsky District (Tatarstan, Russia)

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Abstract

© Published under licence by IOP Publishing Ltd. A recent agricultural trend is aimed to develop organic farming technologies. Organic farming means no mineral fertilizers, pesticides, antibiotics and other chemical substances not characteristic of natural conditions should be used in farm production. When choosing the regions, where this technology can be successfully realized, it is important to evaluate not only the physical and chemical qualities of soils, but also the degree of their infestation with phytopathogens. The Pestrechinsky District of the Republic of Tatarstan, where transfer to organic farming is being planned, was chosen as such a region. Agricultural lands were marked at the map of the administrative region, 100 sampling site were generated using GIS Technologies. It was found out that soil microbial community was characterized by a typical ratio and count of yeast fungi (3.4•105 - 1.6•106 CFU•g-1), mold fungi (1.0•101 - 1.7•105 CFU•g-1) and bacteria (1.6•106 - 3.1•107 CFU•g-1). In all the selected soil samples plant pathogenic fungi of the Fusarium genus were found (26 to 250 CFU•g-1), and as for another genus of plant pathogenic fungi, Alternaria, their count was rather low (0 to 9 CFU•g-1, herewith in 46 samples out of 100 they were absent.

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